

In the Claims

1. (original) A method of capturing gas phase pollutants in a combustion system having an air preheater comprising the steps of:  
creating a model of the combustion system;  
using the model to determine optimal locations to inject particles into the combustion system;  
and  
injecting particles into the combustion system at one or more of the determined locations.
2. (original) The method of claim 1, wherein the gas phase pollutants include sulfur trioxide.
3. (original) The method of claim 2, wherein the temperature gradients within the air preheater are modified to increase the rate of sulfur trioxide condensation on ash particles as they pass through the air preheater and continue to travel downstream.
4. (original) The method of claim 1, wherein the model is a computer model that models various parameters in the combustion system.
5. (original) The method of claim 4, wherein the parameters include temperature patterns, rates of reaction of components, and condensation reactions.
6. (original) The method of claim 5, wherein the parameters include the fuel type.
7. (original) The method of claim 5, wherein the parameters include the geometry of the combustion system.

8. (original) The method of claim 1, wherein the combustion system includes a furnace.
9. (original) The method of claim 1, further comprising the step of using the model to determine the concentration and size of the particles to be injected.
10. (original) The method of claim 1, wherein the optimal locations are determined based on where pollutant condensation occurs in the combustion system.
11. (original) The method of claim 1, wherein the optimal locations are determined such that pollutant condensation occurs primarily on the injected particles.
12. (original) A method of capturing gas phase pollutants in a combustion system comprising the steps of:  
creating a computer model of the combustion system for modeling various parameters in the combustion system, including flow patterns, temperature patterns, and condensation reactions;  
using the computer model to predict the impact on gas phase pollutants by injecting particles into

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